

CLAIMS

What is claimed is:

1. ~~Sub A~~ 1. An apparatus comprising:
- 2 a catheter configured for removing fluids from a respiratory tract of a patient;
- 3 a manifold defining a ventilation circuit disposed in communication with the
- 4 catheter so as to allow the catheter to be advanced through the ventilation circuit of the
- 5 manifold and into the respiratory tract of the patient; and
- 6 a valve disposed in the manifold, the valve being configured to selectively limit
- 7 the withdrawal of air from the ventilation circuit, wherein the valve comprises at least one
- 8 protrusion on at least one surface of the valve.
- 1 2. The apparatus of Claim 1 wherein the valve comprises a flap movable between
- 2 a first, distal position and a second, proximal position.
- 1 3. The apparatus of Claim 2 wherein the flap is configured such that at least one
- 2 protrusion on a proximal surface of the flap engages the distal end of the catheter.
- 1 4. The apparatus of Claim 3 further comprising a catch disposed in the manifold
- 2 to engage the flap as it is drawn into the second, proximal position and to retain the flap
- 3 in the second, proximal position.
- 1 5. The apparatus of Claim 1 wherein the valve comprises a flap pivotally
- 2 connected to the manifold.
- 1 6. The apparatus of Claim 5 wherein the flap is generally disk-shaped and has at
- 2 least one projection extending proximally outward therefrom to increase the diameter of
- 3 the disk.
- 1 7. The apparatus of Claim 1 wherein the valve has an open position and a closed
- 2 position and wherein friction maintains the valve in a nearly closed position.

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1 8. The apparatus of Claim 1 wherein the valve further comprises an aperture and
2 the flap disposed to selectively cover the aperture.

1 9. The apparatus of Claim 8 further comprising a collar disposed in the manifold,
2 and wherein the orifice is formed in the collar.

1 10. The apparatus of Claim 9 wherein the collar includes a port for injecting
2 liquid into the collar.

1 11. An endotracheal catheter system comprising:
2 a catheter having a distal end configured for suctioning secretions from the
3 respiratory system of a patient;
4 a ventilator manifold disposed in communication with the catheter such that the
5 catheter may be advanced through the manifold into the respiratory system of the patient
6 and withdrawn from the respiratory system of the patient through the manifold; and
7 a valve for at least partially occluding the distal end of the catheter, the valve
8 being configured to frictionally engage the distal end and thereby occlude the distal end
9 wherein the valve comprises at least one protrusion on at least one surface of the valve.

1 12. The system of Claim 11 wherein the valve comprises a flap configured to
2 frictionally engage the distal end of the catheter via at least one protrusion formed on a
3 proximal surface of the flap.

1 13. The system of Claim 12 further comprising a first wiper seal and a second
2 wiper seal disposed about the catheter when the catheter is advanced in the manifold.

1 14. The system of Claim 13 wherein the catheter is retractable so that the distal
2 end of the catheter is disposed proximally from the first wiper seal and distally from the
3 second wiper seal.

1 15. A respiratory suction apparatus comprising:
2 a suction catheter having a distal end for suctioning secretions;
3 a protective sleeve surrounding a proximal longitudinal portion of the catheter;
4 a manifold connected to the protective sleeve for attachment to a hub of an
5 artificial airway in fluid communication between the respiratory tract of the patient and a
6 ventilator, said manifold having means for accommodating inspiration and expiration of
7 respiratory gases; and
8 a valve connected to the manifold and pivotally moveable with respect thereto for
9 engaging the distal end of the catheter to minimize the amount of air being drawn
10 thereinto responsive to suction through the catheter wherein the valve comprises at least
11 one protrusion on a surface of the valve.

1 16. The apparatus according to Claim 15 wherein the valve comprises a pivotable
2 flap disposed to selectively separate the distal end of the catheter.

1 17. The apparatus according to Claim 16 wherein the flap further comprises an
2 aperture disposed in the flap.

1 18. The apparatus according to Claim 16 further comprising means for enhancing
2 turbulence of the airflow.

1 19. The apparatus according to Claim 16 further comprising a locking member
2 disposed in communication with the flap for selectively preventing movement of the flap.

1 20. The apparatus of Claim 19 wherein the locking member comprises a
2 projection extending inwardly in the manifold to engage the flap and thereby prevent
3 movement of the flap.

1 21. The apparatus of Claim 19 wherein the locking member comprises a force-fit
2 coupling between the flap and the catheter.

1 22. The respiratory suction system of claim 1, wherein the valve comprises at
2 least one injection molded medical grade synthetic resin.

1 23. The respiratory suction system of claim 1, wherein the valve is composed of a
2 material selected from polyurethanes, ethylene vinyl acetate copolymers, polyvinyl
3 chlorides, polyamide/polyethers, polysilicones, polyamides, polyethylene, ethylene α -
4 olefin copolymers, polyesters, polycarbonates, acrylonitrile-butadiene-styrene
5 copolymers, polyether-polyester copolymers, and polyether polyamide copolymers.

1 24. The respiratory suction system of claim 23, wherein the valve is formed of a
2 polyether block amide polymer.

1 25. The respiratory suction system of Claim 23 wherein the valve is composed of
2 ethylene vinyl acetate copolymer.